



PHYSICS

BOOKS - MBD

ELECTRICITY

Example

1. What is electric circuit?



[Watch Video Solution](#)

2. Define unit of electric current?



[Watch Video Solution](#)

3. Calculate the number of electrons that constitute 1 coulomb of charge.



[Watch Video Solution](#)

4. Name a device that help to maintain a potential difference across a conductor?



[Watch Video Solution](#)

5. What is meant by saying that the potential difference between two points is 1 V?



[Watch Video Solution](#)

6. How much energy is given to each coulomb of charge passing through a 6 V battery?



[Watch Video Solution](#)

7. On what factors does the resistance of a conductor depend?



[Watch Video Solution](#)

8. What is the resistance of a conductor? State the factors on which resistance of a conductor depends?



[Watch Video Solution](#)

9. Will the current flow more easily through a thick wire or a thin wire of the same material when connected to the same source ? why?



[Watch Video Solution](#)

10. Why are coils of electric toasters and electric irons made of an alloy rather than that of a pure metal?



[Watch Video Solution](#)

11. Which material is best conductor?



[Watch Video Solution](#)

12. Draw schematic diagram of a circuit consisting of a battery of three cells of 2 V each a 5Ω resistor: an 8Ω resistor and 12Ω resistor and a plug key, all connected in series?



[Watch Video Solution](#)

13. Judge the equivalent resistance when the following are connected in parallel: 1Ω and $10^6\Omega$



Watch Video Solution

14. Judge the equivalent resistance when the following are connected in parallel: 1Ω and $10^3\Omega$ and $10^6\Omega$



Watch Video Solution

15. An electric lamp of $100\ \Omega$, a toaster of resistance $50\ \Omega$ and a water filter of resistance $500\ \Omega$ are connected in parallel to a $220\ \text{V}$ source. What is the resistance of the electric iron connected to the same source that takes as much current as all the three applications and what is the current through it?



Watch Video Solution

16. What are the advantages of connecting electric devices in parallel with the battery?

instead of connecting the in series?



[Watch Video Solution](#)

17. How can three resistors of resistance $2\ \Omega$, $3\ \Omega$ and $6\ \Omega$ be connected to give a total resistance of (a) $4\ \Omega$ (b) $1\ \Omega$?



[Watch Video Solution](#)

18. What is the (a) highest :(b) lowest total resistance that can be secured by combination

of four coils of resistances 4Ω 8Ω 12Ω 24Ω ?



[Watch Video Solution](#)

19. Compute the heat generated while transferring $96,000\text{ C}$ of charge in one hour through a potential difference of 50 V .



[Watch Video Solution](#)

20. An electric iron of resistance 20Ω takes a current of 5 A . Calculate the heat developed in

30s.



Watch Video Solution

21. What determines the rate at which the energy is delivered by a current?



Watch Video Solution

22. An electric motor takes 5 A from a 220 V line. Determine the power of the motor and the energy consumed in 2 h.



Watch Video Solution

23. A piece of wire of resistance R is cut into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combination is R' , then the ratio R/R' is

A. (a) $1/25$

B. (b) $1/5$

C. (c) 5

D. (d)25

Answer:



Watch Video Solution

24. Two conducting wires of the same material and of equal length and equal diameters are first connected in series and then in parallel in an electric circuit. The ratio of heat produced in series and parallel combination would be (a) 1:2 (b) 2:1 (c) 1:4 (d) 4:1



[Watch Video Solution](#)

25. How is a voltmeter connected in the circuit to measure potential difference between two points?



[Watch Video Solution](#)

26. When a 12 V battery is connected across an unknown resistor, there is a current of 2.5 mA in the circuit. Find the value of the resistance of resistor?



[Watch Video Solution](#)

27. A battery 9 V is connected in series with resistors of 0.2Ω , 0.3Ω , 0.4Ω , 0.5Ω and 12Ω respectively. How much current will flow through a 12Ω resistor?



[Watch Video Solution](#)

28. How many 176Ω resistors in parallel are required to carry 5A on a 220 V line?



[Watch Video Solution](#)

29. How will you connect three resistors, each of resistance $6\ \Omega$, so that the combination has a resistance of (i) $9\ \Omega$,(ii) $4\ \Omega$



[Watch Video Solution](#)

30. Several electric bulbs designed to be used on a $220\ \text{V}$ electric supply line are rated $10\ \text{W}$. How many lamps can be connected in parallel

with each other across the two wires 220 V line if the maximum allowable current is 5A?



[Watch Video Solution](#)

31. A hot plate of an electric oven connected to a 220 V line has two resistance coils A and B, each of 24Ω resistance, which may be used separately, in series or in parallel what are current in three cases?



[Watch Video Solution](#)

32. Compare the power used in $2\ \Omega$ resistor in each of the following circuits: a $4\ \text{V}$ battery in parallel with $12\ \Omega$ and $2\ \Omega$ resistors.



Watch Video Solution

33. Two lamps, one rated $100\ \text{W}$ at $220\ \text{V}$ and other $60\ \text{W}$ at $220\ \text{V}$, are connected in parallel to electric main supply. What current is drawn from the line if the supply voltage is $220\ \text{V}$?



Watch Video Solution

34. Which uses more energy, a 250 W TV set for 1 hour or a 1,200 W toaster for 10 minutes?



Watch Video Solution

35. An electric heater of resistance 8Ω draws 15 A from service mains for 2 hours. Calculate the rate at which heat is developed in the heater.



Watch Video Solution

36. Explain the following : Why is the tungsten used almost exclusively for filament of electric lamps?



Watch Video Solution

37. Explain the following: Why are the conductors of electric heating devices, such as bread toasters and electric irons, made of an alloy rather than pure metal?



Watch Video Solution

38. Explain the following : Why is the series arrangement not used in domestic circuits?



Watch Video Solution

39. Explain the following:How does the resistance of a wire vary with its area of cross-section?



Watch Video Solution

40. Explain the following : Why are copper and aluminium usually employed for electricity transmission?



Watch Video Solution

41. What is meant by Joule's heating effect due to flow of current through a conductor?



Watch Video Solution

42. Define electric power and unit of electric power



Watch Video Solution

43. What do you mean by electric energy ? Give the definition of its unit.



Watch Video Solution

44. What is meant by resistance of a conductor? On what factors does the resistance of conductor depends?



Watch Video Solution

45. Resistance of a conductor depends on:



Watch Video Solution

46. What is ohm's law? How can it be verified?



[Watch Video Solution](#)

47. Write ohm's law. Draw a circuit diagram to prove it experimentally in the laboratory?



[Watch Video Solution](#)

48. What is the need of combining different resistors? What is the resultant resistance when number of resistances are connected in series?





[Watch Video Solution](#)

49. Find the equivalent of resistances of the individual resistance connected in series?



[Watch Video Solution](#)

50. With the help of a diagram derive the formula for the equivalent resistance of three resistances connected in parallel?



[Watch Video Solution](#)

51. With the help of a labelled circuit diagram derive a formula to find combined resistance (R) when two or more resistance are connected in parallel taking symbol potential difference (V) and current (I)



Watch Video Solution

52. What is meant by electric power ? Give its SI unit.



Watch Video Solution

53. What is power? Give commercial unit of power



Watch Video Solution

54. What is electric energy? what is its SI unit?



Watch Video Solution

55. What is the contribution of electricity in our daily life?



Watch Video Solution

56. What do you understand by static electricity?



Watch Video Solution

57. What are positive and negative charges?

How are these produced?



Watch Video Solution

58. What is a electric circuit?



Watch Video Solution

59. What is meant by electric potential?

distinguish between positive potential and

negative potential.



[Watch Video Solution](#)

60. What is electromotive force of a cell?



[Watch Video Solution](#)

61. What is the potential difference between two points in the electric field? Name its SI unit.



[Watch Video Solution](#)

62. Define volt and it is unit of which physical quantity?



Watch Video Solution

63. How can we say that electric current is due to flow of charge?



Watch Video Solution

64. What is meant by electric current?



Watch Video Solution

65. What is electric current?



Watch Video Solution

66. How does electric current produce heat?



Watch Video Solution

67. Define resistance of conductor. Also give its units



Watch Video Solution

68. What is meant by resistance of conductor and define its units.



Watch Video Solution

69. What is meant by resistivity ? Write its S.I. unit.



Watch Video Solution

70. What is electric current? Give its SI unit?



Watch Video Solution

71. Name and define unit for electric current ?



Watch Video Solution

72. What is electric energy? what is its SI unit?



Watch Video Solution

73. Which instrument is used to measure current in the circuit ? how is it connected in the circuit?



Watch Video Solution

74. Define unit of electric energy?



Watch Video Solution

75. How many joules are present in 1 kilowatt hour?



Watch Video Solution

76. Give reasons for the following: if you connect ammeter in parallel it burns



[Watch Video Solution](#)

77. Give reasons for the following : Resistivity of some materials if decreases suddenly to zero below a certain temperature.



[Watch Video Solution](#)

78. What is the effect on resistance, if the length of wire is increased



[Watch Video Solution](#)

79. What is the effect on resistance, if the area of cross section is increased.



Watch Video Solution

80. Current of 100 mA flows through the filament of an electric bulb for 30 minutes calculate the charge that flow through the circuit.



Watch Video Solution

81. 60 coulomb of charge flows through a circuit for 5 minutes. Calculate the current flowing in a circuit.



Watch Video Solution

82. Calculate the area of cross section of wire whose length is 1.0 m and resistance is 23Ω take specific resistance of the material of wire as 1.84×10^{-6} ohm-m



Watch Video Solution

83. Resistance of a metal of length 1 m is 26Ω at 20°C . If the diameter of the wire is 0.3 mm. What will be the resistivity of the metal at that temperature? Using standard table of resistivity of various metals, predict the material of the wire.



Watch Video Solution

84. In an electric circuit, a battery of five cells each of 2 V, resistors of 5Ω , 10Ω , 15Ω and a key

plug are connected in series arrangement

Draw its schematic diagram



[Watch Video Solution](#)

85. An electric lamp, whose resistance is 20Ω and a conductor of 4Ω resistance are connected to a $6V$ battery as shown in the figure. Calculate (a) total resistance of the circuit (b) the current through the circuit (c) the p.d. across the electric lamp and conductor.



[Watch Video Solution](#)

86. 98 J of heat is produced each second in $2\ \Omega$ resistor. Find the potential difference.



Watch Video Solution

87. What is the (a) highest :(b) lowest total resistance that can be secured by combination of four coils of resistances $4\ \Omega$ $8\ \Omega$ $10\ \Omega$ $20\ \Omega$?



Watch Video Solution

88. An electric bulb of power 40 W is lighted daily for 8 hours for 15 days how many units of electric energy will be consumed? also find the amount of electric bill if the rate of electricity consumption is rs.8.00 per unit



Watch Video Solution

89. A household uses the following electric appliance: Refrigerator of rating 400 W for 10 hours each day , find the energy consumed.



Watch Video Solution

90. A household uses the following electric appliance: Two electric fans of rating 80 W each for 12 hours each day , find energy consumed.



Watch Video Solution

91. An electric motor takes 5A from a 220 V line. Determine the power of the motor and the energy consumed in 2 hours





[Watch Video Solution](#)

92. Define energy.



[Watch Video Solution](#)

93. Define electric energy



[Watch Video Solution](#)

94. Define electric current and give its unit





[Watch Video Solution](#)

95. Define a volt and whose unit is this?



[Watch Video Solution](#)

96. What is Potential difference ?Give SI unit.



[Watch Video Solution](#)

97. Show the switch signs in circuit in (i) open(ii) closed circuit.



[Watch Video Solution](#)

98. Is electric potential a scalar or a vector quantity?



[Watch Video Solution](#)

99. What is practical unit of power and electric energy?



[Watch Video Solution](#)

100. Which one is having more resistance, 100 W bulb or a 50 W bulb?



Watch Video Solution

101. What constitutes the current?



Watch Video Solution

102. What is SI unit of resistivity?



Watch Video Solution

103. What is conductor of electricity? Give two examples?



Watch Video Solution

104. $V \propto I$ law was given by

A. faraday

B. watt

C. ohm

D. coulomb

Answer:



Watch Video Solution

105. The unit of potential is:

A. ampere

B. volt

C. ohm

D. watt

Answer:



Watch Video Solution

106. The unit of electric energy is :

A. joules

B. volt

C. ohm

D. watt

Answer:



[Watch Video Solution](#)

107. Resistance of a conductor depends on:

- A. its length
- B. its area of cross section
- C. nature of its material
- D. all of these

Answer:



[Watch Video Solution](#)

108. By which unit electric current is represented?

A. coulomb

B. ampere

C. watt

D. kilowatt

Answer:



Watch Video Solution

109. Electric current in circuit is measure by:

A. ammeter

B. voltmeter

C. galvanometer

D. electric meter

Answer:



Watch Video Solution

110. How is ammeter always connected in circuits?

A. in series

B. in parallel

C. both in series and parallel

D. none of these

Answer:



Watch Video Solution

111. How is potential difference between two points expressed?

A. $V = \frac{W}{Q}$

B. $Q = VW$

C. $W = \frac{V}{Q}$

D. $V = \frac{Q}{W}$

Answer:



Watch Video Solution

112. How much work is done to carry 2 c of charge between two points having potential difference of 12V?

A. 2 j

B. 6 j

C. 24 j

D. $\frac{1}{6}$ j

Answer:



Watch Video Solution

113. According to ohm's law:

A. $R = \frac{1}{V}$

B. $R = \frac{V}{1}$

C. $V = \frac{R}{T}$

D. $I = \frac{V}{R}$

Answer:



Watch Video Solution

114. A stream of moving through a conductor constitutes, electric current



Watch Video Solution

115. The SI unit of electric current is.... .



Watch Video Solution

116. In an electric circuit... is always connected in parallel



[Watch Video Solution](#)

117. The equivalent resistance of number of resistors will be lesser, if they are connected in..



[Watch Video Solution](#)

118. If the potential difference across the ends of a conductor is 1 volt and the current flowing through the conductor is 1 ampere, the resistance of the conductor?





[Watch Video Solution](#)